Behavioral Risk Factor Surveillance System
Appendix 1: Application for Proposal for the 2016 BRFSS Questionnaire
Please complete this application as carefully and thoroughly as possible. Incomplete proposals will be returned without review.

SECTION A: TYPE OF APPLICATION
Is this a(n): ☐ **MODIFICATION** ☒ **ADDITION** ☐ **CONTINUATION (no changes)**
☐ **NEW PLAN FOR EXISTING CORE OR MODULAR QUESTIONS**
☐ **PROGRAM WILL HAVE NO QUESTIONS FOR 2016**

SECTION B: SECTION OF QUESTIONNAIRE
This is for a(n): ☒ **OPTIONAL MODULE** {skip to Section C}
☐ **EMERGING CORE**[1] ☐ **CORE**[2]

If this is an application for Emerging Core or Core, are you interested in including as an Optional Module if question(s) do not pass state coordinator vote?
☐ Yes
☐ No

SECTION C: PROGRAM INFORMATION
Program Name: Sleep Health

Program Contact Person: Janet B Croft

Email: jbc0@cdc.gov   **Telephone:** 770-488-2566

SECTION D: SOURCE
1. **What is the source of the question(s)?**
☐ We developed the question(s) **{skip to Q4}**
☒ The question(s) is/are from an existing instrument or adapted from an existing instrument

SECTION E: PERFORMANCE
If not developed by your program then answer Q2-3; otherwise, skip to Q4
2. Please provide the name of the original instrument or source for each question:
1. Trouble sleeping – 2011 BRFSS Anxiety and Depression Module (ADSLEEP – exact question)
2. Daytime sleepiness – 2012 BRFSS Inadequate Sleep Module (SLEPDAY – "30 days" modified to "two weeks" for consistency with Trouble Sleeping)
3. Snore – 2007-2008 NHANES Sleep Disorders Module (SLQ030 – "12 months" modified to "two weeks" for consistency with Trouble Sleeping)
4. Stop Breathing – 2007-2008 NHANES Sleep Disorders Module (SLQ040 – modified to Yes/No rather than "past 12 months")

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[1] Please note that the number of emerging core questions is limited to 4. Proposals with more than 4 questions will not be considered for emerging core.
[2] Additions to the BRFSS Standard Core Questionnaire are limited and will be prioritized.

3. Did you modify the question(s) from the original instrument?

☒ Yes

☐ No

4. Have these questions been part of a human subjects review determination and if so, what is the protocol #.

☐ **State level**

If checked, provide Protocol # [   ]

☐ **HHS level**

If checked, provide Protocol # [   ]

Questions 5 and 6 ask for evidence of validation and reliability testing. Please click on the links for more information regarding these concepts or go to this Link for a summary of both.

5. Have the question(s) undergone validation testing?

☐ Yes

☒ No

☐ Yes – but not completed

If yes, please provide evidence of the extent of validity testing by providing the following information for each study conducted:

Study title:

[   ]

Brief description of methods:

[   ]

Results, including relevant statistics:

[   ]

Citation (if applicable):

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6. **Has the reliability of questions been tested?**
   ☐ Yes
   ☒ No
   ☐ Yes – but not completed
   If yes, please provide evidence of the extent of reliability testing by providing the following information for each study conducted:

Study title:
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Brief description of methods:
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Results, including relevant statistics:
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Citation (if applicable):
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7. **Have the question(s) undergone cognitive testing?**
   ☐ Yes (skip next question and go to Date of testing Question)
   ☒ No

   If no, does program want PHSB to have testing conducted?
   ☒ Yes (go to Question 8)
   ☐ No (go to Question 8)

If yes, please describe the study design and results:

Date of testing:

Study design:

Results:

Please submit any cognitive testing reports to Dr. Carol Pierannunzi (ivk7@cdc.gov) and copy George Khalil (uwm4@cdc.gov).

8. **Have the questions already been administered in surveys or research studies?**

   ☒ Yes
   ☐ No

If yes, please provide citation(s) and population to which it was administered:

Citation 1. Grandner MA et al. Perceived racial discrimination as an independent predictor of sleep disturbance and daytime fatigue. Behav Sleep Med 2012;10(4):235-249.
2. CDC. Unhealthy sleep-related behaviors—12 states, 2009. MMWR 2011;60 (8):233-238.
3. Wheaton AG et al. Sleep disordered breathing and depression among US adults: NHANES, 2005-2008. Sleep 2012;35(4):461-467.

Population:

BRFSS and NHANES general populations

9. **Please indicate approximate total time to administer the set of questions, including instructions.**
   ☐ <30s
   ☐ 30s-1min
   ☐ 1-2 min
   ☐ >2 min

☒ Unknown

10. **Please indicate the average time to administer <u>per question.</u>**
   ☐ <10s
   ☐ 11-20s
   ☐ >20s
   ☒ Unknown

Please provide the methods used to obtain the timing data:

11. **Are the question(s) telephone/cell phone-survey ready?**

   ☒ Yes
   ☐ No

Please describe how you determined the telephone/cell phone-survey readiness of the survey

At least 2 questions have been asked in BRFSS telephone survey and remaining 2 questions were interviewer-administered in NHANES.

SECTION F: PUBLIC HEALTH IMPORTANCE

12. **Please provide a rationale for why the question(s) is/are important to health behavior or chronic disease by addressing the following:**

Prevalence or disease burden:
50 to 60 million Americans suffer from poor sleep health, which is associated with obesity, many chronic diseases, motor vehicle accidents, and other adverse health behaviors. In 2006 BRFSS, 19% reported trouble sleeping. In 2009 BRFSS, 38% reported unintentionally falling asleep during the day and 48% reported snoring. In 2005-2008 NHANES, 35% reported snoring ≥5 nights/week and over 5% reported stopping breathing ≥5 nights/week.

Estimated costs to the public and healthcare:

Costs for diagnosis and treatment of obstructive sleep apnea (OSA) ranges from $2-10 billion yearly.

How the topic is related to a state or national initiative (e.g. Healthy People 2020):

All proposed variables are sleep disorders and combined with sleep duration, high blood pressure, and obesity (3 core measures in 2016) as OSA symptoms create an index for OSA. It has been difficult to obtain population estimates of OSA because of the number of variables needed. The relevant HP2020

objective is SH-1: Increase the proportion of persons with symptoms of OSA who seek medical attention.

13. Besides your program, how will other states, programs or agencies benefit from the inclusion of these question(s) in the BRFSS?

Other agencies will be able to obtain state-level estimates of OSA and the individual disorders.

SECTION G: ANALYTIC PLAN

14. Please explain why state-level estimates are desired (e.g., impact for your program/agency, local/state/national policy implications, support to research funding.)

Currently there are no state-level estimates of these indicators to provide guidance for funding.

15. Please explain why there is a need to measure the question(s) over time

To allow states to have the opportunity to use module if not able to implement in 2016.

16. Please describe how calculated variable(s) will be constructed from the question(s)

Topic: Adults who have a given sleep disorder
Demographic group: Adults aged $\geq$18 years
Numerator: Adult respondents who report a given disorder
Denominator: Adult respondents
Measures of frequency: Prevalence (%)

17. **Please describe how the variable(s) will be used in analyses (e.g., outcome, predictor, etc.).**

Each sleep disorder can be correlated with obesity, depression, chronic conditions, smoking, alcohol use, quality of life, sedentary behavior, and sociodemographic variables. An OSA index can also be created.

18. **Based on your questions of interest and anticipated effect size, please provide an estimate for required sample size and the rationale/calculations used to determine the size.**

Estimated Sample Size:

Based on previous BRFSS and NHANES results, we estimate average prevalence of trouble sleeping at 19%, unintentionally falling asleep (daytime sleepiness) at 38%, snoring at 35%, and 5% stopping breathing. For the lowest prevalence (5% stopping breathing), a sample size of 456 is required for precision within +2 points (range from 3-7%) and a sample size of 1825 is required for a precision within +1 point (range from 4-6%) from each state. For the highest prevalence (38% daytime sleepiness), a sample size of 2263 is required for a precision within +2 points (range from 36-40%) and a sample size of 9051 within +1 point (range from 37-39%).

Rationale/calculations:

In 2013 BRFSS, state sample sizes ranged from 4,252 (AZ) to 13,386 (NJ). All states had at least 9 times the 456 required for precision within +2 points for stopping breathing and at least twice the 2263 sample size for +2 points for daytime sleepiness.

19. <u>Current</u> wording of proposed question(s) (please attach additional Word document if space below is not sufficient):

Sleep Disorder

I would like to ask you a few questions about your sleep patterns.

1. Over the last 2 weeks, how many days have you had trouble falling asleep <u>or</u> staying asleep <u>or</u> sleeping too much?

__ __ 01-14 days
88   None
77   Don't know/Not sure
99   Refused

2. Over the last 2 weeks, how many days did you find yourself unintentionally falling asleep during the day?

__ __ 01-14 days
88   None
77   Don't know/Not sure
99   Refused

3. Over the last 2 weeks, how many days did you snore?

__ __ 01-14 days
88   None
77   Don't know/Not sure
99   Refused

4. Has anyone ever observed that you stop breathing during your sleep?

1   Yes
2   No
7   Don't know/Not sure
9   Refused